



EXHIBIT # 11

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**PLANNING BOARD
GRAFTON, MA**

Review of Proposed Wireless Communications Facility Application for 30 Grafton Common September 26, 2017

The Grafton Planning Board is hearing an application for Special Permit and Site Plan Review for a proposed Verizon Wireless installation in the steeple of the church building at 30 Grafton Common. The Planning Board engaged Isotrope to review technical details specific to Wireless Communications Facilities ("WCFs") under the Grafton Zoning Bylaw. This report provides initial commentary on the application. This review is based on documents submitted by the applicant and materials submitted by others to the Board.

The application is to install wireless antennas in the steeple and to change the louvers for visually identical ones made from composite materials. Behind the church building the applicant proposes a fenced compound about 9 by 13 ft. The fence would stand about 9 ft tall. There would be a "rain canopy" just less than 9 feet above grade. This canopy would be a ribbed steel roof deck that the applicant proposes to paint a dark color to match the existing color of the louvers on the steeple. While the top surfaces of the deck will be inches below the top of the fence, the location of the outdoor compound is in a depression that might enable passersby to see the deck while looking across or slightly down on the installation.

The West (Rear) Elevation detail drawing 2/A02 included in the site drawings is of too low a resolution on our copy to read elevations. Similarly, the most detailed view of the layout of the compound and surrounding space is in the main drawing A01. This also fails to capture finer details of the proposed compound. In its waiver requests, the applicant suggests the information it has provided is sufficient to render a decision, and the Board might agree. If the Board is inclined to get a more thorough record and understanding of the proposed layout, more detailed elevation and plan views of the compound and the surrounding topography could be requested from the applicant.

This report will step through the relevant WCF bylaw criteria and provide commentary on the application and the applicant's claims. For brevity, the applicant's remarks and the bylaw language is omitted or paraphrased. Following the Bylaw assessment, there is a section on the Telecommunications Act of 1996 and one on recent communications from the public.



5.8.3 Site Selection Preferences

The proposal to mount antennas inside a steeple is of the highest preference, the use of an existing structure. Outdoor equipment is confined to a ground-level fenced compound.

5.8.4. Submittal Requirements

In addition to the general Special Permit submittal requirements under Section 1.3 of the Zoning Bylaw, the application should include general design and capacity information of the WCF, Site Justification statement, FAA clearance information, search for similarly tall structures within ½ mile (in an effort to use existing facilities), balloon test plan, statement of compliance with Bylaws Section 1, and some procedural requirements.

The applicant suggests it has submitted sufficient information for the Board to consider and requests waivers of items it believes to be irrelevant or unnecessary. Indeed, the proposal is to use an existing structure in a camouflaged way, which eliminates the need to prove there is no existing structure available, to perform a balloon test, or to have FAA clearances. There may be some missing information the Board still considers relevant.

Strictly, the submittal requirements are not approval criteria. The information contained in the submittals should be used to inform the evaluation of the proposal under the Bylaw's criteria for granting approval.

5.8.5 Conditions for Granting, findings required

5.8.5.a How well proposal meets Bylaw criteria

Special Permit Criteria

The general Special Permit criteria are found in Section 1.5:

"The special permit granting authority shall make findings on which to base its determination on the specific issues of:

- a. Ingress and egress to property...
Existing parking area, limited number of visits per month. [Isotrope remarks underlined]
- b. Off-street parking and loading areas where required, with particular attention to the items in paragraph (a) above, and the economic, noise, glare, or odor effects of the special permit on adjoining properties and properties generally in the district.
Consider visual effect of fenced compound with painted rain canopy at rear of building.
- c. Refuse collection or disposal and services areas, with particular reference to items in paragraphs (a) and (b) above.
No refuse generation.
- d. Screening and buffering with reference to type, dimensions and character.



Refer to site plans and photosimulations. Is there enough detail in the materials provided?

- e. Signs, if any, and proposed exterior lighting with reference to glare, traffic safety, economic effect, and compatibility and harmony with properties in the district.
See WCF signs limitations.
- f. Required yards and other open space; and
See plans.
- g. General compatibility with adjacent properties and other property in the district.
See plans and photosimulations. A noise study (Exhibit 1o) shows how noise abatement is incorporated in the design of the outdoor equipment compound. Radio frequency transmissions are demonstrated to be in compliance with FCC (and Commonwealth of Massachusetts) requirements (Exhibit 1p).
- h. There will not be any significant adverse impact on any public or private water supply.
No increased water consumption with WCF. Is runoff a non-issue?
- i. Water Supply Protection Overlay District rule – not applicable
- j. Protect important historic, cultural and scenic landscapes.
Consider plans, photosimulations, opinion of Historic District Commission.
- k. Marijuana dispensary rule – not applicable

The preceding items are required findings.

WCF Special Permit Criteria

The purpose and intent of the WCF bylaw is outlined in Section 5.8.1.1:

“...to protect public safety, to protect the ecological, scenic, historical and recreational values of the Town and to ensure that adverse visual and operational effects will not contribute to blighting, deterioration or other deleterious effects upon the surrounding neighborhood...

- Maximize use of existing and approved towers and other structures to accommodate new antennas and transmitters in order to reduce the number of wireless communications facilities needed to serve the community.

Existing structure proposed with concealment.

- Encourage providers to co-locate their facilities on a single structure or site

Consider whether to inquire about the potential for future co-location. The Prime Lessee, YSC, is best positioned to respond to this.

- Minimize the location of facilities in visually sensitive areas

Does the concealment address this concern?

- Site facilities below visually prominent ridge lines

Not applicable?

- Protect historic and residential areas from potential adverse impacts of such facilities

Consider the plans, photosimulations, Historic District Commission response.



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- Avoid potential damage to adjacent properties from facility failure through engineering and careful siting of facilities.”

No tower structure proposed.

While the preceding criteria are not given as required findings, the Board is free to make findings as appropriate.

5.8.5.b Residential District – not applicable

5.8.5.c Sufficient Screening

All equipment in steeple and on ground is screened by louvers and a fence, respectively. Will the proposed dark-colored ribbed steel rain canopy be visible to the public; if so, will it be visually compatible?

5.8.5.d Use of “Special Structure”?

Applies to “facilities... within a distance equal to twice the height of the facility (from the ground to its highest point) but not less than 300 feet from” A, R40, R20, or RMF zoning districts. The proposal is within 300 ft of residential districts.

The applicant suggests this requirement is for new towers. Considering that this part of 5.8.5.d is focused on the “height of the facility,” it could indeed imply that it is meant only for new towers. The difficulty here is that Wireless Communications Facilities are defined in the bylaw as being all the pieces that make up a facility, not just supporting structures and not just towers. We do see some zoning bylaws fall in the trap of using the term “facility” ambiguously, at some points to refer to a tower, or the antennas mounted on the tower or other structure, or the whole thing, including any ground-level equipment. The Board could consider whether this ambiguity has occurred in the Grafton bylaw, and whether a 300-foot setback from residential zones is intended for the proposed steeple-oriented WCF.

5.8.6 General Requirements

This section contains numerous references to tower and to facility in ways that the applicant suggests apply only to new tower proposals.

5.8.6.1 Setback from Property Lines

“Principal part of the facility” must be 300 ft setback from property lines. Interpret meaning of “principal part of the facility.” Consider the clause’s use of the phrase “excluding guy cables” in excluding guys attached to towers, suggesting that the clause applies to towers.

5.8.6.2 Setback from Residential Structures

Same as previous note.



5.8.6.3 Artificial Lighting

Focus is on FAA lighting of towers. Not applicable. There is likely a need to light the interior of the space within the fence and under the rain canopy. This is only needed when workers are present, which is very infrequently.

5.8.6.4 Tower Design – not applicable.

5.8.6.5 Designed for Sharing

While the applicant suggests this requirement is for new towers, it worth asking how the proposed installation leaves room for future installations.

5.8.6.6 No Radio Interference

Technically, this is strictly the FCC's jurisdiction. It is reassuring to note that there are tens of thousands of WCFs nationwide and interference to other used of the spectrum is extremely rare. The applicant correctly states that it must comply with FCC requirements regarding interference to others.

5.8.6.7 Tower Color – not applicable

5.8.6.8 Related Equipment

Within 12 ft height limit. No space for prohibited ancillary use by wireless carrier.

5.8.6.9 Underground Utilities

Yes.

5.8.6.10 Dish & Panel Antennas

No dish antennas. Panel antennas happen to be 4 inches short of the 5 ft limit. Nevertheless, the panel antennas are concealed behind louvers, so the 5-ft height limit should not apply to these or to future panel antennas.

5.8.6.11 Signage

Applicant agrees to limit signage to that which is necessary to conform to regulations (e.g. safety signage). This clause ambiguously prohibits "advertising or signage." Consider whether "signage" does not include required postings.

5.8.6.12 Wellhead Setback

Applicant asserts this is satisfied.

5.8.6.13 Landscaping

These very specific rules appear to be intended for a new tower facility's compound in undeveloped areas. The rules allow for a substitute proposal that honors the intent of the bylaw. Applicant's drawings show a proposed plan.



5.8.7 Multiple Uses on Lot

Board is advised by this section to give due consideration to overall function on lot with the other use (See 1.5.5 and 5.8.5 of the bylaw). The proposed added use is infrequently attended.

5.8.8 Modifications

This says that a special permit must be modified for alteration or expansion of the facility in the future. The 2012 Middle Class Tax Relief and Jobs Creation Act, Section 6409 puts some limits on what modifications of a wireless facility are essentially by-right. In the present case, the proposed facility relies on concealment, for which the FCC is more protective. Ensure the concealment characteristics of the louvers and fencing are called out clearly as concealments if an approval is granted.

Telecommunications Act of 1996

It is customary in many Massachusetts municipalities for a Special Permit granting authority to consider a WCF application on its merits under the Zoning Bylaw, and follow on with an assessment of the implications of the Telecommunications Act of 1996 ("TCA"). Advice of counsel is recommended to ensure that the details of compliance with the TCA are not missed.

While the Bylaw has typical performance criteria for new WCFs (visual, traffic, structural, developmental, etc), the TCA has a fundamental requirement not to effectively prohibit the provision of the carrier's personal wireless services in Grafton. While collecting the evidence necessary to address the Bylaw criteria, the Board must at the same time collect substantial evidence in the written record relating to TCA issues, in case the Board declines to approve the WCF.

Primarily, there is need to document whether there is a significant gap in the applicant's service and whether there are viable alternatives to the proposed WCF to achieve this. The Bylaw does not require the applicant to prove a significant gap for the purpose of a Special Permit. The Conditions and General Requirements are silent on this question. The substantiation of need is limited to "An evaluation of the potential to utilize existing facilities for the proposed facility" (5.8.4.a).

The applicant has shown in its radio frequency ("RF") coverage analysis (Applicant's Exhibit 1n) that the locations of existing wireless facilities (particularly towers) are not central to the area proposed to be served by the proposed WCF. A planned facility (Grafton 5), if approved, potentially provides coverage to some of the area targeted by the proposed facility, but the applicant's showing illustrates how Grafton 5 would have so much area coverage that Grafton 5 will have difficulty serving all users within its very large footprint. Grafton 5 needs facilities like



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the proposed facility to keep from being overloaded. The proposed facility provides an important service because it is on the fringe of other facilities' coverage as well as Grafton 5 potential coverage. The proposed facility would serve the densely populated area and connecting streets near the center of Grafton.

In addition to answering 5.8.4.a regarding the use of existing facilities, the applicant's RF coverage analysis provides the applicant's perspective on demonstrating need for the facility under the TCA. Even though the center of Grafton is on a hill and gets spotty coverage from distant facilities, there is no central source of reliable, strong Verizon Wireless signal in the vicinity. For the purposes of the TCA, and not for the Bylaw-based Special Permit review, the Board can determine whether this area of substandard coverage near the town center qualifies as a significant gap in service.

The other factor under TCA consideration is whether there are alternatives to the proposed facility. If the Board is inclined to approve the facility with conditions, it might not be productive to prolong the hearing to assess alternatives. On the other hand, it is generally understood that the substantial evidence necessary to evaluate the availability of alternatives (and of the claim of a significant gap) must be gathered during the hearing process. The Board should decide how far down the evidence-collecting path it needs to go to be prepared to evaluate alternatives if the Board declines to approve the facility. Advice of counsel is recommended.

Public Comment

We have reviewed a letter from a Grafton resident who owns abutting property and a letter from an Ashland resident purporting to be a "Technology Safety Educator."

We are not aware of any formal title or certification of "Technology Safety Educator." No resume was forwarded with the letter. The communication from this Ashland resident was inflammatory, suggesting vague and generalized risks of great public harm from the approval of new WCFs. This letter lacks credibility and its subject matter is out of the Board's jurisdiction.

The Grafton resident's letter acknowledges a key fact regarding the RF emissions of WCFs. Through the TCA, the United States Congress (not the FCC) chose to preempt local regulation of RF emissions:

"No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions"



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We have reviewed the applicant's analysis of the environmental emissions of the proposed WCF and concur with its conclusions – the proposed WCF will deliver very low levels of RF energy into the surrounding area. The WCF will be compliant with the FCC safety standards for the general population by a large margin. As the Board is aware, once FCC compliance is verified, the Board has no further authority to regulate a proposed WCF on this issue. Advice of counsel is recommended if the Board has any questions about its role.

The Grafton resident also suggests that “cell towers add an increased risk of lightening strikes....” As the board is aware, there is no cell tower in the current proposal before it. Church steeples are already prominent targets for lightning. Steeples usually have lightning rods and heavy ground conductors to help protect them.

In the design of the WCF, when antennas are placed within the steeple, it is customary to ensure the steeple lightning protection and the metal apparatus of the antennas and their mounts within the steeple are properly connected to a ground system. The ground system is carried to the design of the ground equipment as well. There is no material change in lightning risk with the proposed facility. If anything, the improvements to the grounding system brought about by the addition of the WCF will most likely improve the lightning protection of the church building.

The Grafton resident also expresses concern about an approval of this WCF prompting “multiple cell towers littered throughout the historic district and surrounding areas...” Of course, this is the purpose of zoning regulation. The Board has the tools and authority to regulate the placement of wireless facilities.

The Grafton resident asks about “added noise and light pollution.” As with the previous question, the WCF bylaw provides the Board with the tools to evaluate and control such impacts.

The Grafton resident asks “whether Verizon Wireless even has any significant gaps in coverage in this area of Grafton.” First, the WCF Zoning Bylaw does not require this level of proof of need for the proposed WCF. Only in the case of non-approval of the proposal does the Board have an obligation under the TCA to have documented whether a significant gap exists.

As the applicant's RF coverage analysis reveals, it is not as simple as taking anecdotal experience of a handful of users of the service to assess the need for the WCF. The coverage footprint of the Verizon Wireless 700 MHz LTE service has been documented with engineering tools. It shows substandard Verizon Wireless performance is delivered to the center of Grafton and surrounding areas.



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Finally, while it is not within the authority of the Board to further consider the RF emissions of the proposed facility that have been shown to be FCC compliant, it may be reassuring to know that the FCC requirements for protecting the general population are conservative science-based thresholds developed in consensus standards processes by diverse panels of experts. To the charge that the FCC has not revised its regulations since 1996, it may be reassuring to note that the open consensus standards (on which the FCC regulations are based) are periodically reviewed in light of new science, and those standards have not significantly changed between then and now.

David Maxson, WCP
September 26, 2017

